A two-roll tissue dispenser comprising a housing having a dispensing opening and a door providing access into the housing, two support arms pivotally mounted in the housing and each carrying a post for tissue rolls disposed normal to the support wall for the housing each of the support arms being pivotally moved at a common axis and sequentially pivotal only in one direction from a storage position to a dispensing position and then to an exhaust position and then back to the storage position, and latch mechanism automatically controlling the sequential pivoting of the support arms through the four positions namely automatically to deliver a tissue roll from the storage position to the dispensing position upon the exhaustion of the tissue roll in the dispensing position; an improved lock mechanism for such a dispenser has also been provided.

20 Claims, 21 Drawing Figures
This invention relates to a two-roll tissue dispenser, and particularly to such a dispenser employing pivotally mounted support arms sequentially pivotal from a storage position to a dispensing position and then to an exhaust position and then back to the storage position.

An important object of the invention is to provide a tissue dispenser comprising a housing having a tissue dispensing opening therein, two support arms pivotally mounted in the housing and each carrying therein means for holding a roll of tissue, each of the support arms being sequentially pivotal from a storage position holding the tissue roll away from the dispensing opening to a dispensing position holding the tissue roll adjacent to the dispensing opening and then to an exhaust position with no tissue thereon and then back to the storage position for receiving thereon a fresh tissue roll, and latch mechanism mounted in the housing and shiftable between a first condition and a second condition, the latch mechanism in the first condition thereof holding a support arm in the storage position thereof and in the second condition thereof accommodating movement of a support arm from the storage position thereof to the dispensing position thereof, the presence of one of the support arms in the dispensing position thereof holding the latch mechanism in the first condition thereof to retain the other of the support arms in the storage position thereof, movement of the one support arm from the dispensing position thereof to the exhaust position thereof permitting movement of the latch mechanism to the second condition thereof thereby to accommodate movement of the other support arm from the storage position thereof to the dispensing position thereof, movement of the other support arm from the storage position thereof to the dispensing position thereof returning the latch mechanism from the second condition thereof to the first condition thereof thereby to hold the one support arm in the storage position thereof upon pivotal movement thereof from the exhaust position thereof to the storage position thereof for receiving a fresh tissue roll thereon.

Another object of the invention is to provide a tissue dispenser of the type set forth wherein the two support arms have a common pivot axis and are pivotal in the same direction sequentially from a storage position to a dispensing position and then to an exhaust position and then back to the storage position.

Another object of the invention is to provide a tissue dispenser of the type set forth wherein the latch mechanism is a latching pawl shiftable between a first position and a second position, the latching pawl thereon a holding surface and a first abutment surface and a second abutment surface and a trailing edge, each of the support arms having a pawl engaging pin thereon sequentially engageable with the several surfaces on the latching pawl, whereby to provide the desired sequence of movement of the support arms.

Another object of the invention is to provide a tissue dispenser of the type set forth wherein the housing has a door pivotally mounted thereon, the door carrying a support which engages the support of the tissue roll in the dispensing position to define the dispensing position thereof.

A further object of the invention is to provide in a tissue dispenser of the type set forth an improved locking mechanism.

Further features of the invention pertain to the particular arrangement of the parts of the tissue dispenser, whereby the above-outlined and additional operating features thereof are attained.

The invention, both as to its organization and method of operation, together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a tissue dispenser made in accordance with and embodying the principles of the present invention, the dispenser being shown mounted on a support wall and being viewed from one side thereof;

FIG. 2 is a perspective view of the tissue dispenser illustrated in FIG. 1 as viewed from the other side thereof.

FIG. 3 is an enlarged plan view of the tissue dispenser of FIGS. 1 and 2 with the door thereof in its open position.

FIG. 4 is an enlarged view in section through the tissue dispenser of FIG. 3 along the line 4--4 thereof, the door also being disclosed in dashed lines in the closed position thereof;

FIG. 5 is a still further enlarged fragmentary view in section along the line 5--5 of FIG. 3;

FIG. 6 is a part-diagrammatic view of the latching pawl forming a part of the tissue dispenser of the present invention, the pawl being shown in the two principal operating positions thereof;

FIGS. 7 and 8 are enlarged fragmentary views, partly diagrammatic, illustrating the manner in which the latching pawl of FIG. 6 controls the movement of tissue rolls from the storage positions to the dispensing positions thereof;

FIGS. 9 to 16, inclusive, are diagrammatic views illustrating the manner of dispensing tissue from the tissue dispenser of the present invention and the manner of loading fresh tissue rolls thereinto;

FIG. 17 is a fragmentary view in section similar to FIG. 4 and illustrating a modification of the core post;

FIG. 18 is a fragmentary view in section similar to FIG. 4 and illustrating an improved locking mechanism for the tissue dispenser of the present invention;

FIG. 19 is a plan view of certain parts of the locking mechanism of FIG. 18;

FIG. 20 is a further enlarged fragmentary view, partly in section, showing further details of the locking mechanism of FIG. 18, the parts being shown in the locked positions; and

FIG. 21 is a view similar to FIG. 20 and showing the parts in the unlocked positions thereof.

Referring to FIGS. 1 to 6 of the drawings, there is illustrated a tissue dispenser 100 of the two-roll type made in accordance with and embodying the principles of the present invention, the tissue dispenser 100 being shown mounted upon a vertical support wall 50. As illustrated, the tissue dispenser 100 includes a metal housing 101 provided with a door 110 and having mounted therein a rear support arm 130 carrying a first core post 135 for carrying a first tissue roll 60, a front support arm 150 having a second core post 155 for carrying a second tissue roll 70, and a latching pawl 180 controlling the pivotal movement of the support arms 130 and 150 during the dispensing of tissue from the tissue rolls 60 and 70.

Referring specifically to FIGS. 1 to 3 of the drawings, the housing 101 includes a rear wall 102, the shape of which is best illustrated in FIG. 3 of the drawings, the rear wall 102 carrying three mounting holes for mounting the tissue dispenser 100 upon the support wall 50, one of the mounting holes being occupied by the mounting screw 177 while the other two mounting holes are occupied by mounting screws 90. It will be seen that the mounting screws 177 and one of the mounting screws 90 are in horizontal alignment, while the second mounting screw 90 is disposed well above the first two mounting screws named and on a vertical line bisecting the distance between the first two mounting screws named. This symmetrical arrangement of the mounting holes in the rear wall 102 permits two of the tissue dispensers 100 to be mounted back-to-back on opposite sides of a support wall, such as the support wall 50, and using a common set of fasteners such as bolts and nuts to mount the two tissue dispensers 100 on the support wall. Referring to FIGS. 4 and 5, it will be appreciated that the mounting hole receiving the screw 177 is in an embossment 104 in the rear wall 102 extending inwardly into the housing 101.

As illustrated, the housing 101 further includes a top wall 105 which is curved downwardly to the rear or left-hand side as viewed in FIG. 3 and merges with a side wall 107. Preferably the top wall 105 has an inwardly offset flange at the free edge thereof and the side wall 107 likewise has an offset flange 108 at the free edge thereof (see FIG. 4) to accommodate cooperation with the door 110 as will be described
more fully hereinafter. The inner edge of the rear wall 102 slopes downwardly and to the left as viewed in FIG. 103 to provide the free edge 109 which defines one side of the dispensing opening for the tissue dispenser 100.

The door 110 includes a front panel 111 which essentially has the outline of the rear wall 102 and is provided with a top flange 112 and a side flange 113 which cooperate with the offset flanges on the top wall 105 and the side wall 107, respectively, of the housing 101, and more specifically the side flange 113 cooperates with the offset flange 108 as is best shown in FIG. 4, for example. The door 110 also has a rear panel 115 which is essentially rectangular in shape and carries on the lower edge thereof an outwardly extending bottom panel 116. The forwardly projecting end of the bottom panel 116 carries a curl 117 in which is disposed a shaft 118 that supports a roller 120 disposed in an opening in the curl 117, the roller 120 having a slightly greater diameter than that of the curl 117, whereby to provide a support against which may rest the periphery of a tissue roll in the dispensing position thereof. The edge of the front panel 111 that corresponds to the edge 109 of the rear wall 102 is provided with a fold back flange 124 so as to remove the possibility of any sharp edges at this point, the flange 124 presenting a lower edge 129 that is shaped essentially like the lower edge 109 on the rear wall 102, the lower edges 109 and 129 defining therewith a dispensing opening for the housing 101.

As illustrated, the door 110 is secured to the rear wall 102 by means of a piano hinge 125, the piano hinge 125 including a first hinge pin 126 suitably secured as by welding to the rear edge of the rear wall 102 and a second hinge pin 126 suitably secured as by welding to the rear edge of the rear panel 115, the hinge plates 126 and 127 being connected by the usual hinge pin 128. The hinge 125 accommodates movement of the door 110 between the fully closed position illustrated in FIGS. 1 and 2 and by dashed lines in FIG. 4 and the fully open position illustrated in FIG. 3 and by solid lines in FIG. 4. It will be appreciated that when the door 110 is in the closed position thereof, all of the dispensing mechanism within the tissue dispenser 110 is essentially concealed and inaccessible from the exterior, the only part of the dispenser accessible from the exterior being the tissue roll partially exposed through the dispensing opening between the lower edges 109-129. On the other hand, when the door 110 is moved to the open position thereof as illustrated in FIG. 3, the entire dispensing mechanism within the tissue dispenser 110 is accessible and the support arms 130 and 150 have room fully to rotate about the pivot axis thereof, all as will be explained more fully hereinafter.

Referring now to FIGS. 3 to 5 of the drawings, it will be seen that there has been provided the rear support arm 130 which is essentially formed of sheet metal and has the general outline illustrated in FIG. 3. One end of the support arms 130 has an opening 131 therein, while the other end thereof is offset or embodied as at 132 and has an opening 133 therethrough for mounting the core post 135 thereon. Intermediate the ends of the support arm 130 and extending rearwardly toward the rear wall 102 is a pawl engaging pin 134, the function of which will be described more fully hereinafter.

The core post 135 is freely rotatable and includes a shaft 136 having the axis thereof disposed normal to the plane of the support arm 130 and provided at one end with a head 137 that is secured to the support arm 130 such as by spot welding, resistance welding, projection welding, or the like. Disposed about the shaft 136 are two disc bearings, more specifically an inner disc bearing 138 and an outer disc bearing 139, the disc bearings being formed of nylon or other good bearing material. Mounted on the disc bearings 138-139 is a cylindrical sleeve 140 that carries at the lower end thereof as viewed in FIG. 4 an out-turned flange 141 provided on the outer edge with an annular flange 142 that snugly fits over the inner disc bearing 138. The upper end of the sleeve 140 carries an out-turned flange 143 having an annular flange 144 thereon engaging about the outer disc bearing 139. An end plate 145 is provided overlying the outer disc bearing 139 and having an opening therethrough receiving a stub 146 on the outer end of the shaft 136, the outer end of the stub 146 being passed over to provide a head 147 that holds all of the parts in the assembled condition.

There is mounted upon the core post 135 a tissue roll 60, the tissue roll 60 including the usual tubular cardboard core 61 about which are wound the tissue sheets 62. As illustrated, the tissue roll 60 has each of the ends thereof bored as at 63, whereby to permit positioning thereof upon the core post 135. It will be seen that the diameter of the annular flange 142 on the core post 135 is of substantially greater diameter than the annular flange 144 on the outer end of the core post 135, the outer diameter of the annular flange 144 being slightly less than the inner diameter of the core 61, whereby the tissue rolls 60 can slip thereover. However, it will be appreciated that the outer diameter of the annular flange 142 is greater than the inner diameter of the core 61 of the tissue roll 60, whereby only specially prepared tissue rolls 60 having a countere bore 63 therein of a diameter slightly greater than the outer diameter of the flange 142 can be accommodated on the core post 135. In other words, the annular flange 142 and the countere bore 63 provide an anti-rotating arrangement which requires the usage of the specially constructed tissue rolls 60 thereon as illustrated.

The tissue dispenser 100 also includes a front support arm 150 which is constructed essentially like the inner support arm 130, and more specifically has an opening 151 in the inner end thereof and carries a core post 155 on the outer end thereof. Also mounted on the support arm 150 is a pawl engaging pin 154 (see FIG. 5 also), the purpose and operation of the pin 154 to be more fully described hereinafter. The core post 155 is constructed like the core post 135 and is freely rotatable and is more specifically of the anti-rotating type including an end plate 165 held in position by a head 167. As illustrated, the core post 155 supports a tissue roll 70 which is of the same construction and arrangement of the tissue roll 60, the tissue roll 70 including a core 71, a supply of paper 72 and being provided with a countere bore 73 in the opposite ends thereof.

The support arms 130 and 150 are pivoted vertically upon the rear wall 102 in the housing 101 for pivoting about a common pivot axis, the mounting structure therefor being best illustrated in FIGS. 4 and 5. Mounted in the embossment 104 is a mounting pivot 170 including a head 171, a shank 172 and a reduced portion 173. The head 171 preferably has on the upper surface thereof as viewed in FIGS. 4 and 5 a plurality of molding projections (not shown) whereby after insertion of the shank 172 into an opening 103 in the embossment 104 the mounting pivot 170 can be securely fastened as by projection welding to the rear wall 102. The support arms 130 and 150 are then assembled on the shank 172 by insertion thereof through the aligned openings 131 and 151 therein, after which a retaining washer 176 is placed over the reduced portion 173 and the outer end of the reduced portion 173 peened over of riveted to provide the riveted head 174. The heads 171 and 174 hold the various parts named in the assembled position. It further is pointed out that this mounting pivot 170 has an opening 175 therethrough which receives the mounting screw 177 described above, the mounting screw 177 typically being provided with a slotted head 178 and threaded shank 179.

Referring particularly to FIGS. 6 to 8 of the drawings, there is illustrated the construction and mounting of the latching pawl 180 which controls the sequential pivotal movement of the support arms 130 and 150 about the common pivot axis thereof, that pivot axis being designated by the numeral 190 in the several figures of the drawings. As illustrated, the latching pawl 180 is crescent shaped and is provided with the ends thereof with a pivot rivet 181 that is secured to the rear wall 102 (see FIG. 5 also), the pivot rivet 181 accommodating the movement of the latching pawl 180 between the solid line position and the dashed line position illustrated in FIGS. 6 and 8. The concave surface of the latching pawl 180 is of no particular form and is merely formed concave to accommodate
the mounting thereof adjacent to the pivot axis 190 of the support arms 130–150. The convex surface of the latching pawl 180 on the other hand is shaped with great particularity, and more specifically includes a holding cam surface 182, a first part-circular cam surface 183, a transition cam surface 184, a second part-circular cam surface 185 and a trailing end 186. The first part-circular cam surface 183 extends through the arc designated 195 and disposed between the dotted lines 191 and 192 in FIG. 6 of the drawings; the cam surface 183 is the arc of a circle having the pivot axis 190 as the center when the latching pawl 180 is in the solid line position in FIG. 6. The second part-circular cam surface 185 extends through the arc designated 196 and disposed between the dashed lines 193 and 194 in FIG. 6 of the drawings; the cam surface 185 is the arc of a circle having the pivot axis 190 as the center when the latching pawl 180 is in the dashed line position in FIG. 6. The holding cam surface 182 is essentially tangent to the first part-circular cam surface 183 and is relieved inwardly with respect thereto, while the transition cam surface 194 simply interconnects the two part-circular cam surfaces 183 and 185. The solid line position of the latching pawl 180, i.e., its most counterclockwise position, is established by an upper stop lug 187 on the rear wall 102, and preferably struck therefrom, which establishes the dashed line position of the latching pawl 180, i.e., its most clockwise position, is established by a lower stop lug 188 on the rear wall 102, and preferably struck therefrom.

The manner in which the latching pawl 180 cooperates with the pawl engaging pins 134 and 154 and the stop lugs 187 and 188 to control the rotation of the support arms 130 and 150 is best illustrated in FIGS. 7 and 8 of the drawings. If a tissue roll, such as the tissue roll 60 supported on the support arm 150, is in the dispensing position with the periphery thereof against the roller 120 as illustrated in FIG. 7, the pin 154 illustrated in solid lines is in engagement with the cam surface 185 and holds the latching pawl 180 in the full clockwise position against the stop lug 188. This places the tissue roll 70, and specifically the tissue 72 therefrom, at the dispensing opening in the tissue dispenser 100. Since the cam surface 186 is a true arc of a circle about the pivot axis 190, it will be impossible to pivot the latching pawl 180 in a counterclockwise direction so long as the pin 154 is in engagement with any portion of the solid lines is in engagement with the cam surface 185, as is well understood, because of the inability to move either the pin 190 or the pin 154 radially along the line interconnecting the same. Accordingly, the support arm 130 will be held with the pin 134 thereof against the holding surface 182 on the latching pawl 180, even though the weight of the tissue roll 60 supported thereby may far exceed the weight of the substantially fully exhausted tissue roll 70 supported by the arm 150. Accordingly, the tissue roll 70 and the associated support arm 130 will be held in the storage position illustrated so long as there is any tissue 72 upon the tissue roll 70 in the dispensing position.

A second position of the arm 150 and the remainder of the tissue roll 70 supported thereby is illustrated by the dashed line position of the pin 154 in engagement with the trailing end 186 of the cam surface on the latching pawl 180, this illustrating the position of the parts just after the dispensing of the last tissue 72 from the core 71 of the tissue roll 70. In other words, so long as there is any tissue 72 upon the core 71, the tissue roll 70 will be supported by the roller 120, but upon the exhaustion of the tissue 72 from the core 71, the core 71 will be able to pass across the roller 120 and move from the position illustrated at the lower left in FIG. 7 to that illustrated at the lower left in FIG. 8.

As soon as the pin 154 disengages the trailing end 186 of the latching pawl 180, the weight of the tissue roll 60 acting through the support arm 130 and the pin 134 will cause the latching pawl 180 to be pivoted in a counterclockwise direction from the solid line position in FIG. 7 and the dashed line position in FIG. 8 to the solid line position in FIG. 8, i.e., the latching pawl 180 will be pivoted in a counterclockwise direction until it strikes the stop lug 187. Pivoting of the latching pawl 180 permits the pin 134 to move from the hold.
dispensing position illustrated by solid lines in FIG. 12; as a consequence of this movement of the tissue roll 60 to the dispensing position, the surface of the tissue roll 60 is in contact with and supported by the roller 120; a portion of the tissue roll 60 extends through the dispensing opening of the dispenser 100 and the tissue sheets 62 are now accessible to a user.

The users continue to withdraw tissue sheets 62 from the tissue roll 60 which causes the support arm 130 progressively to rotate about the pivot axis 190 in a clockwise direction from the position illustrated in FIG. 12 to that illustrated in FIG. 13. At this juncture a maintenance man will inspect the tissue dispenser 100 and upon discovering that the tissue roll 70 is exhausted, will remove the core 71 from the support arm 150 and rotate the support arm 150 carrying the now empty core post 155 in a clockwise direction as illustrated in FIG. 14 to the storage position illustrated in FIG. 15. Since the pin 134 on the support arm 130 is in engagement with the cam surface 185 on the latching pawl 180, the latching pawl 180 will be in the clockwise position illustrated by solid lines in FIG. 7 so as to position the holding cam surface 182 to engage the pin 154 on the support arm 150 to hold the support arm 150 in the storage position. The maintenance man then supplies a fresh tissue roll 70 and places it upon the core post 155, after which he closes the door 110.

When the tissues 62 are exhausted from the core 61, the support arm 130 will move to a position clockwise with respect to the roller 120 which will free the latching pawl 180 so that it will move under the urging of the weight of the tissue roll 70 to the counterclockwise position illustrated by solid lines in FIG. 8 and thus permit the support arm 150 to move from the storage position thereof to the dispensing position thereof, and thus to place the fresh tissue roll 70 in the dispensing position such as that illustrated in FIG. 9. The next time that the maintenance man inspects the dispenser 100, he will discover that the tissue roll 60 is exhausted and therefore will remove the core 61 from the core post 153 and pivot the support arm 130 in a clockwise direction back to the position illustrated in FIG. 9 and place a fresh tissue roll 60 on the post 135, whereby to return the parts essentially to the position illustrated in FIG. 9. It will be appreciated that the process can be indefinitely repeated.

From the above explanation it is clear that the fresh tissue roll in the storage position is promptly moved to the dispensing position upon the exhaustion of the tissue from the roll in the dispensing position, movement of the fresh tissue roll from the storage position to the dispensing position being under the urging of gravity, and more specifically as a result of the weight of the fresh tissue roll. The placement of the fresh tissue roll in the dispensing position requires no effort or action on the part of the user other than to strip the last usable tissue from the tissue roll in the dispensing position. More particularly, it is not necessary for the user to remove the cardboard core 61 or 71, as the case may be, nor is it necessary for the user otherwise to manipulate any part of or any supply item in the dispenser 100.

The dispenser 100 is easy to service since the support arms 130 and 150 are continuously rotatable in a clockwise direction about the pivot axis 190 so that an empty core post 135 or 155 can be readily placed in the storage position for the reception of a fresh tissue roll thereof. In other words, the tissue roll in the dispensing position need not be disturbed or even touched in order to place a full and fresh tissue roll on the support arm 130 or 150 from which the tissue has been exhausted. As a result, maintenance is simplified and very economical.

Another desirable result is achieved by the construction of the present invention in that the distance that the dispenser 100 extends into the space in which it is mounted is not a function of or related to the diameter of the tissue roll since an increase in the diameter of the tissue roll is accommodated in a direction parallel to the rear wall 102 and therefore does not further impinge into the space associated with the dispenser 100. In other words, the diameter of the tissue roll can be increased without increasing the protrusion of the dispenser 100 into the space and away from the support wall 150. Normally wound tissue rolls have a diameter of 5 inches and contain 1500 one-ply sheets. The dispenser 100 of the present invention can readily be designed to permit tissue roll diameters of 6¾ inches containing 3000 one-ply sheets without rendering the dispenser 100 too bulky or unwieldy.

Referring to FIG. 17 of the drawings, there is illustrated a modified tissue dispenser made in accordance with and embodying the principles of the present invention, the modification of the dispenser residing in the design and construction of the core post 235. As illustrated, the rear support arm 230 carries an offset or embossed outer end 232 as described above with respect to the support arm 130, the outer end 232 carrying a pair of spaced apart slots 233. The core post 235 in the form of a cylindrical sleeve 240 having an out-turn flange 241 at the lower end thereof carrying an annular flange 242 on the outer edge thereof. Depending from the annular flange 242 is a pair of lugs 243 that extend through the slots 233 and are bent over to engage the underside of the support arm outer end 232. The other end of the sleeve 240 is provided with a cap 245 including a depending annular flange 246 which fits over and is suitably secured to the upper end of the sleeve 240. It will be appreciated that by this construction the core post 235 is fixed with respect to the support arm 230 and cannot rotate with respect thereto. As illustrated, the core post 235 has an enlarged base provided by the annular flange 242 whereby to provide an anti-tilting structure. There is shown illustrated on the core post 235 a tissue roll 80 including the usual core 81 having a plurality of sheets 82 thereon. The lower end of the tissue roll 80 is counterbored at 83 so as to receive therein the annular flange 242 defining the enlarged base of the core post 235. It is noted that the upper end of the tissue roll 80 is not so counterbored, whereby the tissue roll 80 can be applied in only one position onto the post 235. It will be appreciated, however, that a tissue roll having a counterbore in each end could also be used on the core post 235. It will be appreciated that the tissue roll 80 will rotate with respect to the fixed core post 235 only with difficulty, whereby to retard rotation of the tissue roll 80, and thus to discourage excessive tissue consumption therefrom.

Referring to FIGS. 18 to 21 of the drawings, there is illustrated a further modification of the tissue dispenser, and more specifically there is illustrated an improved lock structure therefor. The tissue dispenser there illustrated is designated by the numeral 300, and the parts of the tissue dispenser 300 that correspond in structure to like parts in the tissue dispenser 100 have applied thereto numbers in the 300 series that correspond to the like part in the 100 series described above. It will be seen that the retaining washer 176 of the dispenser 100 has been enlarged in the dispenser 300 to provide a retaining washer 376 which carries integral therewith an annular lock post 375 extending upwardly therefrom and to a point spaced just a short distance away from the inner surface of the front panel 311 on the door 310. Mounted on the door 310 for cooperation with the lock post 375 is a lock latch 380 having a locking end 381 disposed within the lock post 375 and directed to the left in FIG. 18 and a push button 382 adjacent to the other end thereof extending through an opening 314 in the front panel 311. The lock latch 380 further includes an outer end 384 disposed to the right of the push button 382 in FIG. 18.

Associated with the lock latch 380 is a leaf spring 385 extending through an opening 383 in the lock latch 380 and having a latch end 386 overlying a portion of the locking end 381 and having a post end 387 overlying and normally in engagement with the outer end of the lock post 375 at a point spaced from the rear panel 315 of the door 310. A latch 390 is attached through aligned openings in the front panel 311, the lock latch 380 and the leaf spring 385 to hold the parts in the assembled positions illustrated. There further is provided a lock 390 mounted on the front panel 311 of the door 310.
having the usual key opening (not illustrated) for controlling the position of the movable lock arm 391, the lock arm 391 being movable between the locking position illustrated in FIGS. 18 and 20 wherein it retains the lock latch 380 in the locking position by engaging the outer end 384 thereof and a release position illustrated in FIG. 21 wherein it is out of the path of movement of the outer end 384 of the lock latch 380.

With the parts in the locking position illustrated in FIGS. 18 and 20, an unauthorized person is unable to open the door 310. Inasmuch as the door 310 pivots about the hinge 325, there must be a substantial component of motion of the front panel 311 to the left as viewed in FIGS. 18 and 20 in order to accomplish opening of the door 310 even to a small extent. The engagement of the locking end 381 of the lock latch 380 with the mating surface of the lock post 375 positively prevents such movement of the front panel 311 thereby effectively to hold the door 310 locked in the closed position thereof.

Even after the maintenance man moves the lock arm 391 on the lock 390 from the locking position illustrated in FIGS. 18 and 20 to the closed position illustrated in FIG. 21, the leaf spring 385 maintains the lock latch 380 and the several parts thereof in the locked position. However, if a maintenance man pushes in the direction of the arrow 385 in FIG. 21 against the push button 382 to move the parts to the position illustrated in FIG. 21, it will be noted that the leaf spring 385 has been deformed and the locking end 381 of the lock latch 380 has been lifted out of the lock post 375 whereby to provide clearance therebetween, and thus to permit opening movement of the door 310. After the pressure on the push button 382 is released the spring 385 will return the parts associated therewith to the positions illustrated in FIGS. 18 and 20, thereby to permit the lock arm 391 again to be moved to the locking position illustrated in FIGS. 18 and 20 and thus to lock the door 310 in the closed position thereof.

While there have been described what are at present considered to be certain preferred embodiments of the invention, it is evident that various modifications may be made therein, and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A tissue dispenser comprising a housing having a tissue dispensing opening therein, two support arms pivotally mounted in said housing and each carrying thereon means for holding a roll of tissue, each of said support arms being sequentially pivotable from a storage position holding the tissue roll away from said dispensing opening to a dispensing position holding the tissue roll adjacent to said dispensing opening and then to an exhaust position with no tissue thereon and then back to the storage position for receiving the tissue roll, and latch mechanism mounted in said housing and shiftable between a first condition and a second condition, said latch mechanism in the first condition thereof holding a support arm in the storage position thereof and in the second condition thereof accommodating movement of a support arm from the storage position thereof to the dispensing position thereof, the presence of one of said support arms in the dispensing position thereof holding said latch mechanism in the first condition thereof to retain the other of said support arms in the storage position thereof, movement of said one support arm from the dispensing position thereof to the exhaust position thereof permitting movement of the latch mechanism to the second condition thereof whereby to accommodate movement of said other support arm from the storage position thereof to the dispensing position thereof, movement of said other support arm from the storage position thereof to the dispensing position thereof returning said latch mechanism from the second condition thereof to the first condition thereof thereby to hold said one support arm in the storage position thereof upon pivotal movement thereof from the exhaust position thereof to the storage position thereof for receiving a fresh tissue roll thereon.

2. The tissue dispenser set forth in claim 1 wherein said housing includes a support engaging the surface of the tissue roll in the dispensing position to maintain that tissue roll adjacent to the dispensing opening.

3. The tissue dispenser set forth in claim 1, and further comprising a roller mounted on said housing adjacent to said dispensing opening for contacting the surface of a tissue roll in the dispensing position to accommodate withdrawal of tissue through said dispensing opening.

4. The tissue dispenser set forth in claim 1, wherein said housing has a plurality of mounting holes therein for mounting said housing on a support wall so that the axes of the tissue rolls are disposed normal to the support wall.

5. The tissue dispenser set forth in claim 1 wherein said housing has a plurality of mounting holes therein arranged symmetrically about a vertical mounting line whereby two of the tissue dispensers can be mounted on the opposite sides of a support wall using common fasteners disposed through aligned mounting holes in the housings of said tissue dispensers.

6. The tissue dispenser set forth in claim 1, wherein the carrying means on each support arm for holding a roll of tissue is a post pivotally mounted on the support arm.

7. The tissue dispenser set forth in claim 1, wherein the carrying means on each support arm for holding a roll of tissue includes an anti-bootleg device for cooperation with a complementarily constructed tissue roll.

8. The tissue dispenser set forth in claim 1, wherein the carrying means on each support arm for holding a roll of tissue includes an anti-bootleg device for cooperation with a complementarily constructed tissue roll.

9. The tissue dispenser set forth in claim 1, wherein the carrying means on each support arm for holding a roll of tissue is a post fixedly mounted on the support arm.

10. A tissue dispenser comprising a housing having a tissue dispensing opening therein, two support arms pivotally mounted in said housing on a common pivot axis and each carrying thereon means for holding a roll of tissue, each of said support arms being pivotal about said pivot axis in the same direction from a storage position to a dispensing position and then to an exhaust position and then back to the storage position, each support arm in the storage position being in position for receiving thereon a fresh tissue roll and for holding the tissue roll away from said dispensing opening and in the dispensing position holding the tissue roll adjacent to said dispensing opening and in the exhaust position having no tissue thereon, and latch mechanism mounted in said housing and shiftable between a first condition and a second condition, said latch mechanism in the first condition thereof holding a support arm in the storage position thereof and in the second condition thereof accommodating movement of a support arm from the storage position thereof to the dispensing position thereof, the presence of one of said support arms in the dispensing position thereof holding said latch mechanism in the first condition thereof to retain the other of said support arms in the storage position thereof, movement of said one support arm from the dispensing position thereof to the exhaust position thereof permitting movement of the latch mechanism to the second condition thereof whereby to accommodate movement of said other support arm from the storage position thereof to the dispensing position thereof, movement of said other support arm from the storage position thereof to the dispensing position thereof returning said latch mechanism from the second condition thereof to the first condition thereof thereby to hold said one support arm in the storage position thereof upon pivotal movement thereof from the exhaust position thereof to the storage position thereof for receiving a fresh tissue roll thereon.

11. A tissue dispenser comprising a housing having a tissue dispensing opening therein, two support arms pivotally mounted in said housing on a common pivot axis and each car-
rying thereon means for holding a roll of tissue, each of said support arms being pivotal about said pivot axis in the same direction from a storage position to a dispensing position and then to an exhaust position and then back to the storage position, each support arm in the storage position being in position for receiving thereon a fresh tissue roll and for holding the tissue roll away from said dispensing opening and in the dispensing position holding the tissue roll adjacent to said dispensing opening and in the exhaust position having no tissue thereon, a latching pawl shiftably mounted in said housing adjacent to said pivot axis and shiftable between a first position and a second position, said latching pawl having thereon a holding surface thereon in position to engage the pin on a support arm for holding that support arm in the storage position thereof and in the second position thereof accommodating movement of a support arm from the storage position thereof to the dispensing position thereof, the presence of one of said support arms in the dispensing position thereof causing the pin thereon to engage said second abutment surface to hold said latching pawl in the first position thereof and to place said holding surface thereon in a position to engage the pin on the other of said support arms to retain the same in the storage position thereof, movement of said one support arm from the dispensing position thereof to the exhaust position thereof moving the pin thereon from said second abutment surface past said trailing end thereby to permit the pin on the other of said support arms to shift said latching pawl to the second position thereof and thus to pass that pin along said first abutment surface onto said second abutment surface thus to return said latching pawl to the first position thereof and to place said other support arm in the dispensing position thereof, movement of said latching pawl to the first position thereof returning said holding surface to a position so as to engage the pin on said one support arm in the storage position thereof upon continued pivotal movement thereof from the exhaust position thereof to the storage position thereof for receiving a fresh tissue roll thereon.

12. The tissue dispenser set forth in claim 11, wherein said latching pawl is pivotally mounted in said housing.

13. The tissue dispenser set forth in claim 11, wherein said first abutment surface is an arc of a circle with the center at said pivot axis when said latching pawl is in the second position thereof, and said second abutment surface is an arc of a circle with the center at said pivot axis when said latching pawl is in the first position thereof.

14. The tissue dispenser set forth in claim 11, and further comprising a first stop mounted in said housing to define the first position for said latching pawl, and a second stop mounted in said housing for defining the second position for said latching pawl.

15. A tissue dispenser comprising a housing having a door pivotally mounted thereon and having a tissue dispensing opening therein, two support arms pivotally mounted in said housing and each carrying thereon means for holding a roll of tissue, a support mounted on said door adjacent to said dispensing opening for engaging the surface of a tissue roll, each of said support arms being pivotal from a storage position to a dispensing position and then back to the storage position, each support arm in the storage position being in position for receiving thereon a fresh tissue roll and for holding the tissue roll away from said dispensing opening and in the dispensing position holding the tissue roll against said support adjacent to said dispensing opening and in the exhaust position having no tissue thereon, and latch mechanism mounted in said housing and shiftable between a first condition and a second condition, said latch mechanism in the first condition thereof holding a support arm in the storage position thereof and in the second condi...
sue roll, each of said core posts having a cylindrical outer surface and an annular flange extending outwardly from the cylindrical outer surface a predetermined distance from one end thereof, each of said support arms being sequentially pivotal from a storage position holding the tissue roll away from said dispensing opening to a dispensing position holding the tissue roll adjacent to said dispensing opening and then to an exhaust position with no tissue thereon and then back to the storage position for receiving thereon a fresh tissue roll, latch mechanism mounted in said housing and shiftable between a first condition and a second condition, said latch mechanism in the first condition thereof holding a support arm in the storage position thereof and in the second condition thereof accommodating movement of a support arm from the storage position thereof to the dispensing position thereof, the presence of one of said support arms in the dispensing position thereof holding said latch mechanism in the first condition thereof to retain the other of said support arms in the storage position thereof, said tissue roll comprising an open-ended tubular core, and a web of tissue wound on said core to form said tissue roll, said core having an inner diameter greater than the diameter of said cylindrical outer surface of said core post and less than said outer diameter of said annular flange, said roll having counterbores respectively in the opposite ends thereof extending from the inner surface of said core outwardly to provide annular grooves, each of said grooves having an axial depth substantially equal to the predetermined distance and having a diameter slightly greater than said outer diameter of said annular flange, whereby either end of said roll may be axially received over said core post with said annular flange being received in the adjacent one of said annular grooves to accommodate proper seating of said roll on said core post carried by said support arm, movement of said one support arm from the dispensing position thereof to the exhaust position thereof permitting movement of the latching mechanism to the second condition thereof thereby to accommodate movement of said other support arm from the storage position thereof to the dispensing position thereof, movement of said other support arm from the storage position thereof to the dispensing position thereof returning said latch mechanism from the second condition thereof to the first condition thereof whereby to hold said one support arm in the storage position thereof upon pivotal movement thereof from the exhaust position thereof to the storage position thereof for receiving a fresh tissue roll thereon.

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